

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 70.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-005159**Date Inspected:** 07-Jan-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 830**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2100**Contractor:** Japan Steel Works**Location:** Muroran, Japan**CWI Name:** Chung Kuan**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower, Jacking and Deviation Saddles**Summary of Items Observed:****Steel Structure Welding Shop:**

T1-3 Tower Saddle Steel Structure: Caltrans Quality Assurance Inspector (QAI) representative observed Japan Steel Works (JSW) welder perform Flux Cored Arc Welding (FCAW) process on a rib plate weld #9Y-5V (3-3) of T1-3 tower saddle steel structure. The filler metal and shield gas used for FCAW is Hoballoy wire TM-95K2, 1.6 diameter made by Hobart Brothers, USA with 100% C02. The parameters used for FCAW welding of assemblies were conducted in accordance with Caltrans approved WPS #SJ-3012-3. The FCAW welding process and parameters have been monitored and recorded by CWI inspector Mr. Chung Kuan. Based on Caltrans QA observation, the FCAW welding operation appeared to be in general compliance with requirements of AWS D1.5 2002 and Caltrans contract documents.

T1-1 Tower Saddle Casting and Steel Structure joint welding: Caltrans QA inspector representative observed four Japan Steel Works (JSW) welders perform Shielded Metal Arc Welding (SMAW) root pass process on rib plate welds #7S-5U-2, 7S-6U-2, 7S-7U-1 and 7Y-8U-2 of T1-1 tower. These root pass welds have three passes. The proper filler metal used for SMAW is Hoballoy 9018-M with 5mm diameter electrode made by Hobart Brothers, USA. The parameters used for SMAW welding of assemblies were conducted in accordance with Caltrans approved WPS #SJ-3011-6. The SMAW welding process and parameters have been monitored and recorded by CWI inspector Mr. Chung Kuan. Based on Caltrans QA observation, the SMAW welding operation appeared to be in general compliance with requirements of AWS D1.5 2002 and Caltrans contract documents. The weld #7S-5U-2, 7S-6U-2 and 7S-7U-1 have been MT tested by JSW NDT level II technician after root pass was completed. The purpose for this MT test is assuring no relevant indications on root pass prior FCAW welding. The three root passes has been accepted by JSW technician and Caltrans QAI also used same MT method and

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verified the three root passes.

## Casting Shop:

T1-2 Tower Saddle Casting: Caltrans QAI observed Nikko Inspection Service (NIS) NDT level II technician and an assistant performed Wet MT test on rib side of T1-2 tower saddle casting portion. The casting test surfaces have been machined and blasted prior MT test. The power source of MT testing used electromagnetic yoke with Alternating Current (AC) made by Magnaflux; model number CT-M1. The detection media is used wet red suspension particles mixed with water. A flaw indicator used to check the magnetic field direction and to ensure adequate field strength during MT testing. The test saddle appeared to be approximately 30% complete at this time and no relevant indications were found on the test surface. The wet MT testing will continue tomorrow.

W2E3 and W2W3 West Deviation Saddle casting: Caltrans QAI observed three JSW workers perform grinding process on exterior rough surface of rib sides of W2E3 and W2W3 west deviation saddles after arc-gouging. Grinding process is to remove all the exceed metal, oxide film and slag caused by gouging. The purpose for grinding is prepared for NDT test. Base on Caltrans observation, no discrepancies were noted.

T1-3 Tower Saddle Casting: The QAI observed Nikko Inspection Service (NIS) NDT technician perform dry MT testing on all the excavated metal surfaces of T1-2 tower saddle casting after grinding. The MT test used the yoke method. The yoke utilized appeared to be model UM 3BF, serial numbers 93-05. The magnetic field was verified with a field indicating gauge (pie gauge). Visible dry red magnetic particles were utilized and made by Magnotron, Japan. During MT test, no relevant indication on the surfaces were noted. The MT test will continue to tomorrow.

Based on Caltrans QA observation, the MT test operation appeared to be in general compliance with requirements of ASTM standard E709 and Caltrans contract documents.



## Summary of Conversations:

As noted within the report.

## Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy (510)385-5910, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Pau, Wai	Quality Assurance Inspector
<b>Reviewed By:</b>	Lanz, Joe	QA Reviewer

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